

CLAIMS

1. A method for estimating a deformation factor in an IMD comprising:  
measuring a first charge interval associated with charging one or more capacitors of an implantable medical device to a first energy level;  
extrapolating the first charge interval to estimate an ideal charge time associated with charging the one or more capacitors to a second energy level;  
measuring a second charge interval associated with charging the one or more capacitors to the second energy level; and  
generating a deformation factor as a ratio of the second charge interval to the ideal charge time.
2. The method of claim 1, wherein the method is performed during a reformation process applied to the one or more capacitors.
3. The method of claim 1, wherein the method is performed during a therapeutic process of charging the one or more capacitors in order to deliver a therapeutic shock.
4. The method of claim 1, further comprising adjusting a scheduled time associated with a next reformation process based on the deformation factor.
5. The method of claim 4, further comprising determining whether the deformation factor is greater than a threshold and reducing the scheduled time associated with the next reformation process if the deformation factor is greater than the threshold.
6. The method of claim 4, further comprising adjusting the scheduled time associated with a next reformation process in a manner substantially proportionate to the deformation factor.

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7. The method of claim of claim 4, further comprising determining whether the deformation factor is less than a threshold and increasing the scheduled time associated with the next reformation process if the deformation factor is less than the threshold.

8. A method for estimating a deformation factor in an IMD comprising:  
calculating a deformation factor associated with one or more capacitors in an implantable medical device; and  
adjusting a scheduled time associated with a next reformation process on the one or more capacitors based on the deformation factor.

9. The method of claim of claim 8, further comprising determining whether the deformation factor is greater than a threshold and reducing the scheduled time associated with the next reformation process if the deformation factor is greater than the threshold.

10. The method of claim 8, further comprising adjusting the scheduled time associated with a next reformation process in a manner substantially proportionate to the deformation factor.

11. The method of claim of claim 8, further comprising determining whether the deformation factor is less than a threshold and increasing the scheduled time associated with the next reformation process if the deformation factor is less than the threshold.

12. The method of claim 1, wherein calculating the deformation factor includes:

measuring a first charge interval associated with charging the one or more capacitors to a first energy level;

extrapolating the first charge interval to estimate an ideal charge time associated with charging the one or more capacitors to a second energy level;

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measuring a second charge interval associated with charging the one or more capacitors to the second energy level; and  
generating a deformation factor as a ratio of the second charge interval to the ideal charge time.

13. An implantable medical device comprising:  
one or more capacitors;  
a charge circuit to charge the one or more capacitors;  
a charge measurement device to measure charge across the one or more capacitors; and  
a processor to measure a first charge interval associated with charging the one or more capacitors a first energy level, extrapolate the first charge interval to estimate an ideal charge time associated with charging the one or more capacitors to a second energy level, measure a second charge interval associated with charging the one or more capacitors to the second energy level, and generate a deformation factor as a ratio of the second charge interval to the ideal charge time.

14. The implantable medical device of claim 13, wherein the one or more capacitors are defibrillation capacitors, the device further comprising one or more defibrillation electrodes electrically coupled to the one or more capacitors.

15. The implantable medical device of claim 13, wherein the processor adjusts a scheduled time associated with a next reformation process on the one or more capacitors based on the deformation factor.

16. An implantable medical device comprising:  
one or more capacitors;  
a charge circuit to charge the one or more capacitors;  
a charge measurement device to measure charge across the one or more capacitors; and

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a processor to calculate a deformation factor of the one or more capacitors, and adjust a scheduled time associated with a next reformation process on the one or more capacitors based on the deformation factor.

17. The implantable medical device of claim 16, wherein the processor determines whether the deformation factor is greater than a threshold and reduces the scheduled time associated with the next reformation process if the deformation factor is greater than the threshold.

18. The implantable medical device of claim 16, wherein the processor adjusts the scheduled time associated with a next reformation process in a manner substantially proportionate to the deformation factor.

19. The implantable medical device of claim 16, wherein the processor determines whether the deformation factor is less than a threshold and increasing the scheduled time associated with the next reformation process if the deformation factor is less than the threshold.

20. A computer-readable medium comprising executable instructions that when executed in an implantable medical device cause the device to:

- measure a first charge interval associated with charging one or more capacitors of the implantable medical device to a first energy level;
- extrapolate the first charge interval to estimate an ideal charge time associated with charging the one or more capacitors to a second energy level;
- measure a second charge interval associated with charging the one or more capacitors to the second energy level; and
- generate a deformation factor as a ratio of the second charge interval to the ideal charge time.

21. The computer-readable medium of claim 20, further comprising instructions that when executed cause the device to adjust a scheduled time associated with a next reformation process based on the deformation factor.

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22. A computer-readable medium comprising executable instructions that when executed in an implantable medical device cause the device to:

calculate a deformation factor associated with one or more capacitors in the implantable medical device; and

adjust a scheduled time associated with a next reformation process on the one or more capacitors based on the deformation factor.

23. The computer-readable medium of claim 22, further comprising instructions that when executed cause the device to determine whether the deformation factor is greater than a threshold and reduce the scheduled time associated with the next reformation process if the deformation factor is greater than the threshold.

24. The computer-readable medium of claim 22, further comprising instructions that when executed cause the device to adjust the scheduled time associated with a next reformation process in a manner substantially proportionate to the deformation factor.

25. The computer-readable medium of claim 22, further comprising instructions that when executed cause the device to determine whether the deformation factor is less than a threshold and increase the scheduled time associated with the next reformation process if the deformation factor is less than the threshold.

26. An implantable medical device comprising:  
one or more capacitors;  
means for charging the one or more capacitors;  
means for measuring charge across the one or more capacitors;  
means for measuring a first charge interval associated with charging the one or more capacitors a first energy level;

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means for extrapolating the first charge interval to estimate an ideal charge time associated with charging the one or more capacitors to a second energy level;

means for measuring a second charge interval associated with charging the one or more capacitors to the second energy level; and

means for generating a deformation factor as a ratio of the second charge interval to the ideal charge time.

27. The implantable medical device of claim 26, further comprising means for adjusting a scheduled time associated with a next reformation process on the one or more capacitors based on the deformation factor.

28. An implantable medical device comprising:

one or more capacitors;

means for charging the one or more capacitors;

means for measuring charge across the one or more capacitors;

means for calculating a deformation factor of the one or more capacitors; and

*means for adjusting a scheduled time associated with a next reformation process on the one or more capacitors based on the deformation factor.*

29. The implantable medical device of claim 28, further comprising:

means for determining whether the deformation factor is greater than a threshold; and

*means for reducing the scheduled time associated with the next reformation process if the deformation factor is greater than the threshold.*

30. The implantable medical device of claim 28, further comprising means for adjusting the scheduled time associated with a next reformation process in a manner substantially proportionate to the deformation factor.

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31. The implantable medical device of claim 28, further comprising:  
means for determining whether the deformation factor is less than a threshold; and  
means for increasing the scheduled time associated with the next reformation process if the deformation factor is less than the threshold.